

## CLAIMS

What is claimed is:

1. A method for training a receiving modem, said method comprising:
  - performing segment 1 training by waiting for silence for a first set of symbol intervals;
  - performing segment 2 training by sending a plurality of alternating AB symbols for a second set of symbol intervals;
  - performing segment 3 training by sending a plurality of CD symbols for a third set of symbol intervals to generate a plurality of coefficients for an adaptive equalizer within said receiving modem; and
  - performing segment 4 training by sending a plurality of scrambled binary "1" symbols for a fourth set of symbol intervals to adjust said plurality of coefficients of said adaptive equalizer within said receiving modem.

1 2. The method of Claim 1, wherein said first set of symbol intervals includes 48  
2 symbol intervals.

1 3. The method of Claim 1, wherein said second set of symbol intervals includes 64  
2 symbol intervals.

1 4. The method of Claim 1, wherein said third set of symbol intervals includes 64  
2 symbol intervals.

1 5. The method of Claim 1, wherein said fourth set of symbol intervals includes 48  
2 symbol intervals.

1 6. The method of Claim 1, wherein said performing segment 4 training further includes  
2 concurrently verifying a plurality of estimated symbols generated from a subset of said  
3 plurality of scrambled binary 1 symbols.

1        7.        A computer program product residing on a computer usable medium for training a  
2        receiving modem, said computer program product comprising:

3                    program code means for performing segment 1 training by waiting for  
4                    silence for a first set of symbol intervals;

5                    program code means for performing segment 2 training by sending a  
6                    plurality of alternating AB symbols for a second set of symbol intervals;

7                    program code means for performing segment 3 training by sending a  
8                    plurality of CD symbols for a third set of symbol intervals to generate a plurality  
9                    of coefficients for an adaptive equalizer within said receiving modem; and

10                    program code means for performing segment 4 training by sending a  
11                    plurality of scrambled binary "1" symbols for a fourth set of symbol intervals to  
12                    adjust said plurality of coefficients of said adaptive equalizer within said receiving  
13                    modem.

1 8. The computer program product of Claim 7, wherein said first set of symbol intervals  
2 includes 48 symbol intervals.

1 9. The computer program product of Claim 7, wherein said second set of symbol  
2 intervals includes 64 symbol intervals.

1 10. The computer program product of Claim 7, wherein said third set of symbol  
2 intervals includes 64 symbol intervals.

1 11. The computer program product of Claim 7, wherein said fourth set of symbol  
2 intervals includes 48 symbol intervals.

1 12. The computer program product of Claim 7, wherein said program code means for  
2 performing segment 4 training further includes program code means for concurrently  
3 verifying a plurality of estimated symbols generated from a subset of said plurality of  
4 scrambled binary 1 symbols.

1        13.    A modem comprising:

2                    means for waiting for silence for a first set of symbol intervals;

3                    means for receiving a plurality of alternating AB symbols for a second set  
4                    of symbol intervals;

5                    means for receiving a plurality of CD symbols for a third set of symbol  
6                    intervals to generate a plurality of coefficients for an adaptive equalizer within said  
7                    modem; and

8                    means for receiving a plurality of scrambled binary "1" symbols for a fourth  
9                    set of symbol intervals to adjust said plurality of coefficients of said adaptive  
10                    equalizer.

1 14. The modem of Claim 13, wherein said first set of symbol intervals includes 48  
2 symbol intervals.

1 15. The modem of Claim 13, wherein said second set of symbol intervals includes 64  
2 symbol intervals.

1 16. The modem of Claim 13, wherein said third set of symbol intervals includes 64  
2 symbol intervals.

1 17. The modem of Claim 13, wherein said fourth set of symbol intervals includes 48  
2 symbol intervals.

1 18. The modem of Claim 13, wherein said means for performing segment 4 training  
2 further includes means for concurrently verifying a plurality of estimated symbols generated  
3 from a subset of said plurality of scrambled binary 1 symbols.